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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,628	03/08/2004	Han Cheol Ryu	2013P157	2826
8791	7590	04/28/2006	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD SEVENTH FLOOR LOS ANGELES, CA 90025-1030			OLSEN, ALLAN W	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 04/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/796,628	<b>Applicant(s)</b> RYU ET AL.	
	<b>Examiner</b> Allan Olsen	<b>Art Unit</b> 1763	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 March 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

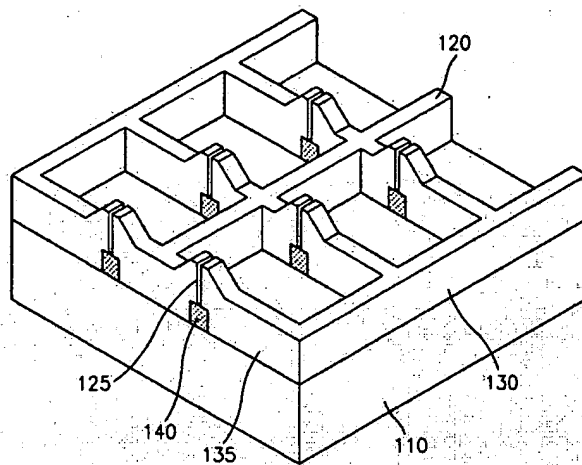
### ***Election/Restrictions***

Claims 1-5 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse in the reply filed on September 28, 2005.

### ***Drawings***

The drawings are objected to because in Figure 2 the first electrode 125 and the second electrode 135 that are shown as components of an IDC 150 are from two different IDC's, as such, the indicated grouping of components does not constitute an IDC. Also, as in the previous Office action, the drawings are objected to for failing to comply with 37 CFR 1.84(p)(4) because reference character "150" has been used to designate an IDC in figure 4C whereas in figure 4A "150" does not point to the IDC of Figure 4C. The depiction of IDC 150 in figure 4C is close-up of figure 4B, which is a close-up of figure 4A. In Figure 4A, the reference number 150 points to a region that is outside the region that is detailed in figure 4B. Below is applicant's figure 3E to which the examiner has added the reference character 150 - twice - one reflecting the representation of figure 4A and the other reflecting 4C.

FIG. 3E



Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6,069,729 issued to Gill et al. (hereinafter, Gill).**

Gill teaches forming a co-planar waveguide (see: column 3, lines 29-30; column 4, lines 20-22; column 8, line 66 - column 9, line 9). Gill teaches depositing and patterning a ferroelectric film (column 14, lines 11-22). Gill teaches depositing metal layer overlying the ferroelectric (see figures 23, 24, 27-29). Gill teaches patterning the metal layer to form a ground plane, a first electrode and a second electrode such that the first and second electrodes overlap the ferroelectric pattern (column 15, lines 11-44). Gill teaches depositing ferroelectric material may be deposited by pulsed laser deposition (column 2, line 3).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gill.**

Gill does not teach using RF ion milling to etch the ferroelectric material.

It would have been obvious to one skilled in the art to use RF ion milling to etch the ferroelectric layer because Gill's teaching regarding the etching of the ferroelectric material is generic with respect to the type of etching that is used and RF ion milling is a common etching technique that the skilled artisan would be immediately envisage from Gill's generic teaching.

**Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gill in view of Whatmore et al. US Patent Application Publication 2002/0118079 (hereinafter, Whatmore).**

The teachings of Gill as noted above are herein relied upon. Additionally, it is noted that Gill teaches that Gold is typically used for electrodes (column 5, line 55).

Gill does not teach using Au/Chrome as the electrode material.

Whatmore teaches sputtering Au and Cr to form the electrodes in coplanar waveguides (see paragraph [0033]).

It would have been obvious to one skilled in the art to use DC magnetron sputtering to deposit Au/Chrome as the electrode material because Whatmore generically teaches sputtering and DC magnetron sputtering is a common type of sputtering that a skilled artisan would be immediately envisaged by Whatmore's generic teaching. Additionally, Whatmore teaches that the addition of Cr is beneficial because Cr serves as an adhesion layer for the Au.

### ***Response to Arguments***

Applicant's arguments filed March 8, 2006 have been fully considered but they are not persuasive. Applicant argues that Gill fails to teach at least the elements of forming a coplanar waveguide, first electrode, ground line, and second electrode by etching the metal layer covering the ferroelectric patterns. Applicant indicates that they are unable to discern where Gill teaches forming a coplanar waveguide by patterning a metal layer deposited on a substrate having formed ferroelectric patterns is taught. Applicant points to figures 20 and 21 of Gill to suggest that waveguides are found within the ferroelectric layer **prior** to patterning the ferroelectric layer and depositing a metal layer. As such, applicant contends that Gill cannot teach forming a coplanar waveguide, first electrode, ground line, and second electrode by etching the metal layer

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covering the ferroelectric patterns if waveguide is present event before Gill deposits the metal layer for the electrodes.

In response the examiner notes that Gill is directed to an optoelectronic device. The waveguides applicant refers to that are present prior to the patterning the ferroelectric layer and depositing a metal layer are optical waveguides. Following the provision of the optical wave guides, Gill, as noted, teaches forming coplanar waveguide electrodes by depositing a metal onto a patterned ferroelectric material and etching the metal to form first and second electrodes and ground plane.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M-F 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Allan Olsen', with a horizontal line extending from the end of the signature.

Allan Olsen  
Primary Examiner  
Art Unit 1763